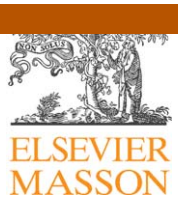
Archives of Cardiovascular Disease (2011) 104, 61—63



Available online at ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com

IMAGE

Segmental analysis of a complex congenital heart disease using cardiac MDCT. Analyse of congenital heart disease: use of MDCT

Intérêt du scanner dans l'analyse segmentaire des cardiopathies congénitales complexes. Analyse segmenatire des cardiopathies congénitales par le scanner

Elise Barre*, Jean-Francois Paul

Centre chirurgical Marie-Lanelongue, 133, avenue de la Résistance, 92350 Le Plessis Robinson, France

Received 21 January 2010; accepted 4 February 2010
Available online 2 April 2010

KEYWORDS
Congenital heart disease;
Imaging;
CT scan

We report a 67-year-old woman who was diagnosed at adulthood a rare and complex congenital heart disease: a corrected transposition of the great vessels and situs inversus.

Patient presented with progressive worsening right heart failure (NYHA class 2).

A cardiac MDCT scan was scheduled to plan surgical tricuspid replacement.

According to the segmental analysis using axial slices, MDCT showed situs inversus and atrio-ventricular discordance (Fig. 1), associated with ventriculo-arterial discordance (Fig. 2). In addition, unique coronary artery was disclosed using 3D images (Fig. 3).

Step analysis leads to a rare condition of corrected transposition of great vessels with and situs inversus *(I, D, D): Inversus, D-Loop, D-malposition.*

The patient underwent successful surgical intervention (plasty of tricuspid valve) with relief of dyspnea at three-month follow-up.

MDCT is a new attractive approach to assess complex congenital heart disease. Intracardiac structures may be identified with their anatomic characteristics and with their own connections. 3D visualisation may help planning surgical interventions.

* Corresponding author. 41, rue Violet, 75015 Paris, France. Fax: +33 1 56 09 26 64.
E-mail address: elisebarre@hotmail.com (E. Barre).

1875-2136/$ — see front matter
doi:10.1016/j.acvd.2010.02.001

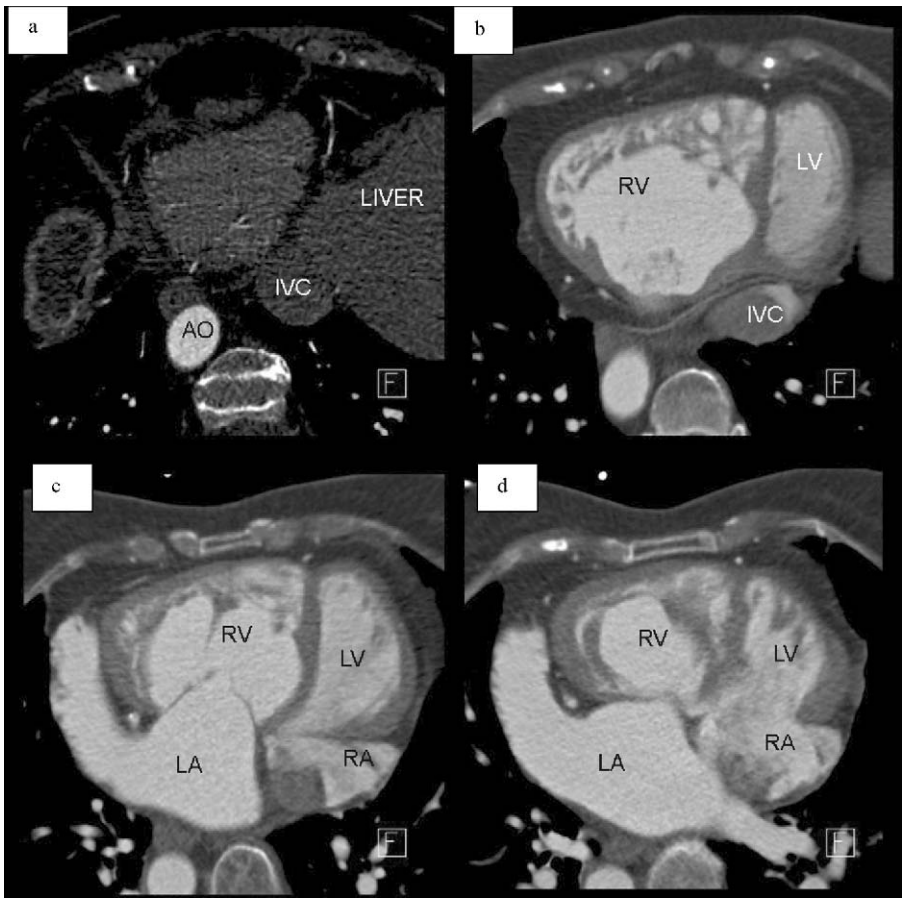


Figure 1. Axial slices from upper abomen to the thorax level. a: on the abdominal level: the liver is on the left side, corresponding to an abdominal situs inversus; b: on the thoracic level: the inferior venae cavae is connected to the right atrium, the latter being left-sided: atrial situs inversus; c: the right ventricle (with trabeculations) is on the right side of the thorax and the left ventricle on the left one (normal ventricular situs); d: the right atrium is connected to the left ventricle and the left atrium is connected to the right ventricle (atrioventricular discordance). Ao: Aorta; CA: coronary artery; IVC: inferior venae cavae; LA: left atrium; LV: left ventricle; PA: pulmonary artery; RA: right atrium; RV: right ventricle.

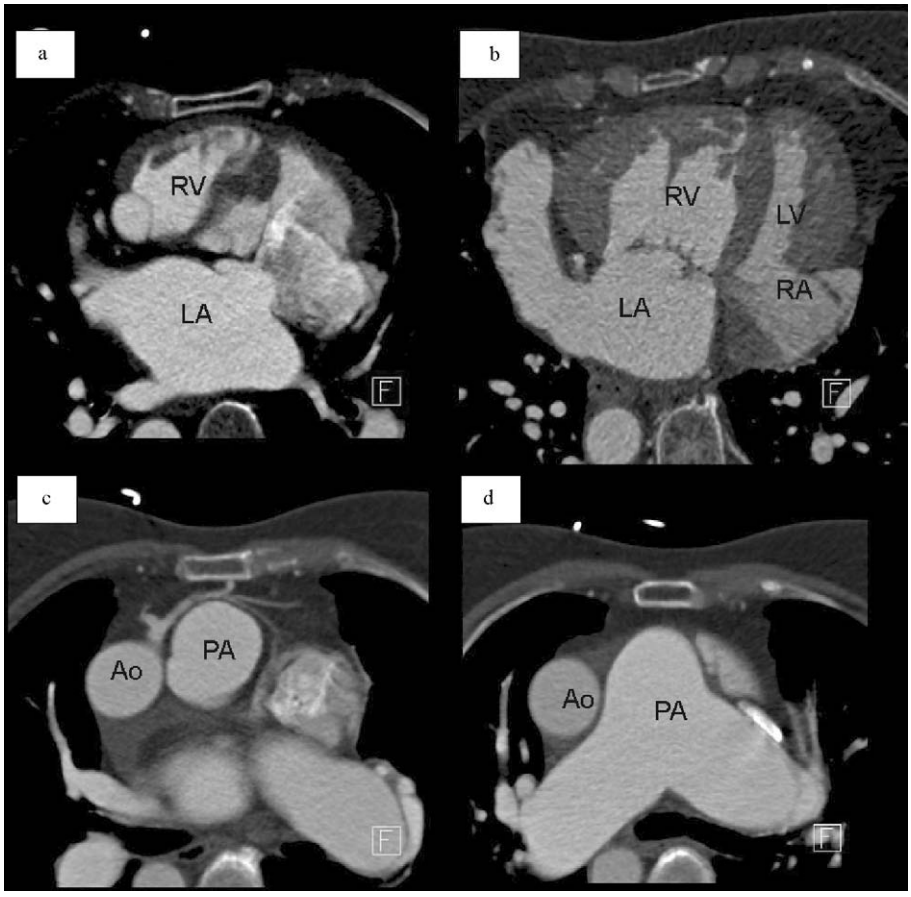


Figure 2. Axial slices on heart level from bottom to top. a, b: the aorta is connected to the right ventricle; the pulmonary artery is connected to the left ventricle (malposition and atrioventricular discordance); c: the aorta is anterior and located at the right side of the pulmonary artery; d: both aortic arch and the thoracic aorta are right-sided. Ao: Aorta; CA: coronary artery; IVC: inferior venae cavae; LA: left atrium; LV: left ventricle; PA: pulmonary artery; RA: right atrium; RV: right ventricle.

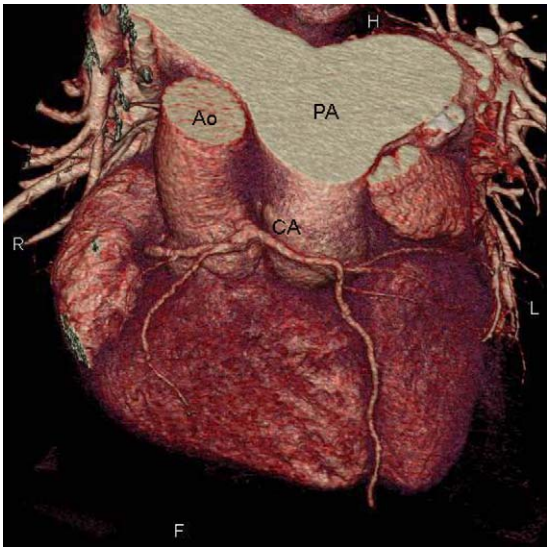


Figure 3. 3D image using volume rendering technique shows a unique coronary artery providing blood supply for both ventricles. Ao: Aorta; CA: coronary artery; IVC: inferior venae cavae; LA: left atrium; LV: left ventricle; PA: pulmonary artery; RA: right atrium; RV: right ventricle.

Conflict of interest statement

None.